

us who had the privilege of working closely with Spicer for many years, it is easy to understand why so many of his students developed deep and lifelong bonds with him.

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Carl Joseph Vyborny

Carl Joseph Vyborny was a distinguished medical physicist and radiologist whose vision and expertise contributed to improved image quality in screening mammography and to the use of computers in the interpretation of medical images. He died of lung cancer on 20 March 2004 in his Riverside, Illinois, home.

Born on 23 November 1950 in Oak Park, Illinois, Carl obtained an early education that included the ardent reading of encyclopedias, and his love of learning was evident during his high-school appearances on the television show *It's Academic*. He continued his education at the University of Illinois at Chicago, where he received a BS in physics and mathematics in 1972. He earned an MS in physics from the University of Illinois at Urbana-Champaign in 1973.

Later that year, Carl turned his focus to medical physics and, subsequently, to medicine at the University of Chicago, an institution that he would never leave completely. He wrote his dissertation "The Speed of Radiographic Screen Film Systems as a Function of X-Ray Energy and Its Effect on Radiographic Contrast" under the guidance of Charles E. Metz and received his PhD in medical physics in 1976. Carl enrolled immediately in medical school, earning an MD with honors in 1980. He served a clinical residency in diagnostic radiology at the University of Chicago and then became an assistant professor, rising to the rank of clinical professor in 2001.

Carl joined a private radiology practice in the western suburbs of Chicago in 1985 while researching and teaching part-time at the University of Chicago. He was an attending radiologist at LaGrange Memorial Hospital in LaGrange, Illinois, for 17 years, a radiation safety officer at LaGrange Memorial Hospital for 14 years and at Glen Oaks Hospital for 3 years, and a member of the Radiation Protection Advisory Council of the State of Illinois for 10 years.

One of Carl's most significant contributions was the refinement of mammographic imaging for improved



Carl Joseph Vyborny

detection of early breast cancer. In 1985, as a member of the American College of Radiology's mammography accreditation program, he helped write the guidelines for accrediting mammography centers. Such efforts led to a position in the newly formed Academy of Radiology Research, which fruitfully encouraged the US government to create, in 2000, the National Institute for Biomedical Imaging and Bioengineering. He also organized delegations of US experts to lecture on screening mammography to the Czech medical establishment.

Carl was a crucial member of the University of Chicago team that developed the first computerized systems to enable radiologists to detect abnormalities in mammograms and chest radiographs. He helped both by guiding algorithm development and by establishing the first clinical trial of computer-aided mammographic diagnosis in metropolitan Chicago. Subsequently, he played a key role in making LaGrange Memorial Hospital one of the two Chicago-area sites in the digital mammography imaging screening trial of the American College of Radiology Imaging Network, the largest clinical trial in radiology ever organized.

As a clinical professor of radiology at Chicago, Carl was a coadvisor to PhD students in the university's graduate programs in medical physics, and he lectured annually on the physics of image quality to the department's resident physicians. Characteristically, his lectures in the university's continuing-education courses usually covered physical image quality as well as clinical interpretation methods.

Though a full-time practicing radiologist, Carl published and con-

tributed more to his field than many full-time academics. He was the author or coauthor of more than 75 peer-reviewed journal articles on medical physics and radiology; was a member of national committees of the National Institutes of Health, the Centers for Disease Control and Prevention, the American College of Radiology, and other institutions; served as an editorial consultant for the leading journals in his field; and played an active role in the teaching of graduate students, medical students, and residents.

Because of Carl's exceptionally strong understanding of both imaging physics and the image-interpretation process, the International Commission on Radiation Units and Measurements (ICRU) invited him to lead the formulation and writing of the document *Image Quality in Chest Radiography*, published in 2004. This comprehensive review covers the physical quality and human perception of chest x rays in order to provide medical physicists and radiologists with a strong foundation in the scientific aspects of chest radiography.

Carl was elected a diplomate of the American Board of Radiology (1984) and a fellow of the Society of Breast Imaging (1992), American College of Radiology (1994), and American Association of Physicists in Medicine (1999). In 2000–01, he was president of the Chicago Radiological Society, and received the society's Distinguished Service Award Gold Medal in early 2004.

Astronomy and genealogy were among Carl's passions. While attending academic meetings, he, his wife, Terrieann, and his daughter, Margaret, saw two solar eclipses. Carl also created one of the largest websites devoted to a Czech family (see <http://vyborny.com>).

In less than three years, Carl completed all of the University of Chicago's requirements for the PhD in medical physics—a record that still stands. He combined the talents of an outstanding scientist, a natural teacher, and a devoted clinician in ways that enabled him to see the big picture and to explain it to others. He was a visionary thinker, yet he helped connect academic research to its ultimate use in private practice.

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Mildred Widgoff

Following World War II, in years not famous for providing easy paths for



Mildred Widgoff

women in science, Mildred Widgoff was a successful scientist and a pathfinder for others. Her research career spanned the fields now called particle physics and particle astrophysics, and covered not only the development of our understanding of the physics but also a series of revolutions in the associated detector technology she used. A professor of physics emerita at Brown University, Mildred died at her home in Barrington, Rhode Island, on 21 July 2004 after a short illness.

Born on 24 August 1924 in Buffalo, New York, Mildred received a BA in physics from the University of Buffalo in 1944. Still only 19 years old, she was recruited to work on the Manhattan Project. In 1952, she completed graduate study in Cornell University's cosmic-ray group under the leadership of Giuseppe Cocconi and Kenneth Greisen and received her PhD with a thesis entitled "Neutrons from Interactions of Mu Mesons in Various Targets." After an apprenticeship in the group's high-altitude work on Mt. Evans, Colorado (now the site of the Meyer-Womble Observatory), she carried out her own research on cosmic-ray muons in an early underground site in Ithaca, New York. Mildred often joked about a certain symmetry in her research career: After years at accelerator facilities, her last experiment was also underground, at the Gran Sasso Laboratory in Italy, and involved the study of cosmic-ray muons.

Mildred subsequently joined the research staff of Brookhaven National Laboratory and, in 1955, became a research fellow at the Harvard University Cyclotron Laboratory. In 1958, she joined the Brown faculty as a re-

search assistant professor and worked concurrently at Harvard until 1961 as a consultant for the Cambridge Electron Accelerator. She remained a faculty member at Brown and continued active involvement in particle physics experiments at facilities worldwide until her retirement as professor in 1995.

At an time when "strange particles" in cosmic rays were studied using cloud chambers and emulsions, her first experiments after arriving at Brown centered on the so-called tau-theta puzzle and involved the use of emulsions exposed to the accelerator beams of the newly built Cosmotron at Brookhaven and Bevatron at the University of California, Berkeley. She also carried out emulsion work at the Harvard cyclotron.

During the 1960s, Mildred engaged in experiments as part of the Cambridge Bubble Chamber Group, a collaboration of scientists from Brown, Brandeis University, Harvard, and MIT. That work included a series of studies of meson spectroscopy via photoproduction at the Cambridge Electron Accelerator. As a member of the International Hybrid Spectrometer Collaboration (IHSC), she constructed a large counter hodoscope system so that a spectrometer could be added to form a powerful hybrid system that was installed at Fermilab in the 1970s and 1980s. With the availability of very-high-energy photon beams at SLAC, she used photoproduction as a spectroscopy tool.

Following the SLAC experiments, Mildred took an active role in the construction and subsequent use of the Large Volume Detector at Gran Sasso to do neutrino astrophysics. Her hardware and software contributions were critical to the success of not only the LVD, but also the Cambridge Bubble Chamber Group and the IHSC.

Mildred was involved in the affairs of Brown University and in its physics department. She was Brown's executive officer from 1968 to 1980. She served the physics community as chair and member of the American Physical Society's committee on the status of women in physics (1973–75) and as chair of APS's New England section (1974–75). From 1976 to 1985, she was a trustee of the American Institute of Physics Insurance Trust. In 1990, she served on the NSF panel Faculty Awards for Women.

Mildred had one of the most positive outlooks of anyone we knew. She genuinely loved being with people, doing physics, and making things work. To her students, she was a devoted mentor and a caring friend. To

us, she was a unique and beloved colleague.

David Cutts

Robert Lanou

Brown University

Providence, Rhode Island

Irwin Pless

Massachusetts Institute of Technology

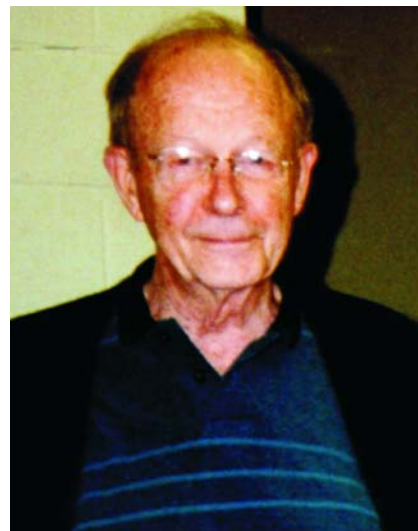
Cambridge

Lemuel David Wyly Jr

Lemuel David Wyly Jr, Regents' Professor of Physics Emeritus at the Georgia Institute of Technology, died on 6 September 2004 in Atlanta, Georgia.

Dave, as he was known to his colleagues, was born on 9 August 1916 in Seneca, South Carolina. Raised in a family environment that emphasized unselfish service, he completed his undergraduate studies in 1938 with a BS in physics from The Citadel, The Military College of South Carolina. From there he went on for an MA in physics from the University of North Carolina at Chapel Hill. After he completed his graduate work in 1939, he joined the faculty of Georgia Tech as an instructor in the School of Physics. That association was interrupted by the outbreak of World War II; during the war, Dave served as a major in the US Army and worked on radar development.

Within a year of the war's end, Dave, who likely was influenced by the knowledge that two of his senior



Lemuel David Wyly Jr

colleagues at Georgia Tech had received their doctorates from Yale University, decided to pursue additional graduate studies at that institution. He received his PhD there in 1949. His doctoral research with Ernest Pollard's group and their use of the Yale cyclotron led to his first published